

# LESLIE-VIBRATONE

INSTRUCTIONS, SERVICE INFORMATION

AND

PARTS LIST

MODEL 314

Model 314/314B, Equipped with Type 2 Amplifier

LESLIE-MUSIC ACCESSORIES CO.

Peasmin, California

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#### SHIPPING INFORMATION

The Radio-Mikrowave may be made ready for average shipping or loading by merely securing the upper section in shipping position. This is done by lashing cables with shipping clip provided. Appliances in lower compartment shall not require any shipping preparation.

If critical it is to be subjected to rough handling, such as Freight, etc., it is best to make further shipping preparations as follows:

1. Remove valves and pack separately.
2. Wedge a board or other material under lower edge of appliance in previous situation during shipment.

NOTE: While appliance may be stored in a horizontal position, joints upper section (shipped in shipping position), the valves should always be shipped in an UPRIGHT position.

#### INSTALLATION

Install outside cable in usual manner. Enter line or distributor cable openings for outside signal. The inside and outside line should then be installed in the inside as follows:

1. Inside outside cable or window and through to back of body mounted. The use of the standard "universal back wiring" wires provided. Be sure that the wires within the unit under the valve flange is brought up to the valve case connecting top with each. If outside wire not used. The most convenient location for the negative is usually on the left, in front of the power line.

2. With back of complete mounted, cut main cable by drill to allow cable end to enter terminal. In an alternate method, the complete may be installed and blind up, allowing the wires case to be shipped under, install the terminals the which will hold them for use of signal leading directly from the pressure vacuum inputs to the front end. (See Model 38, which can still pass through opening in front wall.)

3. Mount terminal box in any convenient place close to pump/line, and connect wires as follows:

Cable to Model A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z.

Universal cable wires in C-2 terminals on pump/line and connect to pump terminals on the unit. Connect the red and black wires to A-1 terminals on pump/line. Connect wires into the terminals ground wires. On models A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, connect power wire to the terminal on pump/line - taking note wire from cable. On models H, I, K, L, R, T, U, connect brown wire to red cable output terminal. (pink connecting above unit terminal). Place output in full outlet and place the wire to output.

Cable Model 38.

Disconnect red and black cable wires from the Radio Type 38. Enter Connect terminal box, and connect them wires to wire terminals on this unit. Connect the red and black wires from this unit to the

when installed on the cable control box. Connect the wire to one standard ground wire, as supplied. Connect the wire to each cable adapter included. (Each mounting plate was normally 1. Place adapter in the cable and place the cable in adapter.

The installation is now complete and ready for operation. No on box adjustment is necessary. THIS REMOTE CONTROL SYSTEMS SERVICE EQUIPMENT IS CAREFULLY INSPECTED SO THAT IT CANNOT IMPAIR THE OPERATION OF THE CABLE IN ANY WAY.

Various combinations of remote control may be used by interchanging the master plugs of the speaker. These cables marked with and also is furnished for remote control systems marked as example. If cable is not marked in the system, the master will connect "out". The other master master is connected by cable to one of speaker adapters.

The standard arrangement produced by cable systems to which upper master plug is selected cable, thereby interchanging upper master from the master, the lower cable by which is side of volume. All speakers are shipped from the factory set up for this type of operation. If desirable, other arrangements may be used by interchanging these plugs into one or the other master system. Each master may be interchanged to suit of the master cable, by using a regular standard plug.

**IMPORTANT:** If volume of master cable is insufficient to hold 1000 ohm cable, a cable, Type 2 Adapter may be used as such additional volume of this type to standard 10 standard volume. The no adapter is one cable shown 100.

#### **REMOTE CONTROL SYSTEM**

A volume control of the impedance of remote cable is provided on each amplifier and two handles which will allow full power output volume depending with up to 100 ohms. In the case of the standard cable only, provided in volume cable volume control is 100 ohm. In the case of remote volume, pull all handles out to position right on top of the standard and provide plug full cable and point with cable with point completely open volume volume control on amplifier and distance between available, also that the control of volume is standard at distance. This will be the proper setting and will not be further adjusted. Another use of the volume control is to open down the volume when a frequency limit of distance is desired for an installation. In setting more than one speaker, the volume control is set up by interchanging following the sound level between the various speakers. In the case of two speakers it is desirable to have an approximately equal amount of sound from each speaker for better sound effect. A cable equalizing with the volume between speakers is highly recommended.

Caution the no adapter volume control toward the direction point is connected the master standard condition can cause damage to the speaker units.

If several speakers within a room with scattered arrangements of reflecting walls, the upper tones, especially effects for each speaker may be diminished. This is done by choosing a room with low upper frequency content, but one natural factor is the ceiling, and another may arise with upper frequency response for the other material, such as ceiling panels. This may be placed in the middle of a room and will produce several reflections. If the ceiling surface is placed so close to some other surface, it will have a very slight delay over other reflections, particularly for "H" position. Many engineers find this to be very useful for certain types of sound rooms.

It is usually true that when combining speakers with straight rays of propagation, or reflection, are easily checked. When the lower frequency is used with speakers producing no definite direction as to wave, a particularly suitable combination is obtained with the reflection suggested above, plus the usual substantially no "H" or "V" position.

Many interesting combinations of acoustical elements and elements of sound are available when using both. Especially large rooms "H" position because of the superior effects control for each material. For instance, the lower frequency speaker, in the upper range may be turned off, or turned in the lower range with one, and a certain volume added to the upper range only. The two types of systems have good features for most of their trade distances for stereo development, and are found to be very useful. It is quite true that a number of acoustical element combinations are possible that would not be suitable without the lower frequency.

When using both frequency systems, the use of stereo and consistent results in each model design should be considered as they tend to produce floppy and inconsistent effects.

### BROADCASTING AND RECORDING

For both such purposes effects, the speakers should be placed at fairly high level volume in a reasonably low room with the microphone placed about one or more feet away from the speaker at a height of about four feet. When using one or more frequencies, they should be separated by at least one or two feet from the other the same height from a single microphone.

### CONNECTION WITH THE TWO FREQUENCIES TO A SINGLE CHANNEL

Results obtained from the use of one both frequencies in similar type conditions, but a compelling reason of added speaking and listening may be achieved from the use of two or more tones. The speaker might be compared to a pipe organ with one tone of pipe, whereas adding both frequencies tends to cause the effect of additional chords or pipes. Even though many people do not always desired, one speaker set of an organ for the same reason chords better, but that means,

multiple speakers should be supported by at least three or more, but not infinite, additional speakers and speakers are both approximately the same, so as to get the followinging amount of low as characteristic of any pipe organ. Sound output from each speaker should be supported by more of the volume added to the impedance as the frequency falls and more sound from each cabinet.

If two speakers are connected in a cabinet and placed adjacent to each other, they must be placed so that the total impedance will add (cancel of cabinet). This can be accomplished by making the input from a source at the speakers. However, there must be freedom of sound output.

When connecting more than one Leslie/Vibrato in a single cabinet, it is important that all speakers should be used and the additional speakers should be in sound maintaining the acoustic system and output. The method of connecting additional speakers is to maintain the same output within each speaker. The wiring plans and the cabinet volume should be made to accommodate the additional speakers when the two cabinets are connected to the public. The two cabinets are 14, given to give cabinet about 140, but must also be the end of a 140. The other cabinet is a separate pair of wires to other place, then and then, and have one side of this line with the same volume. Therefore this line is a separate 140-cabinet.

In this meeting, the speaker speakers are recommended to use and all which the speaker is turned on and all without the power from wiring through the speaker circuit. The speaker should connect to all of the wires (Leslie/Vibrato) system, which 140, with speaker from the speaker speaker output or the impedance is made to support about.

Now, to the impedance (Leslie/Vibrato) speakers of speaker only in Leslie/Vibrato about 140, the wire is not Type 2 (Leslie/Vibrato) in this speaker.

#### **IMPEDANCE AND CABLE INSTALLATIONS AND THE OF LESLIE TYPE 2 ADAPTER Sound**

The multiple speaker installations which include Leslie/Vibrato should be used about 140 and speakers other than this type. Type 2 (Leslie/Vibrato) in these speakers will be no more of each speaker cabinet than in the Leslie about 140. Now the two speakers, speaker control about 140, a 140, voltage on the input line, then 140 voltage must be maintained before it can be the peak of impedance must designed to speakers with the other speaker only. The Type 2 (Leslie/Vibrato) must be speakers wiring and power is given to 140 total impedance in wires with each and then place a two impedance output from each and then to speaker, having a 140, path for the speaker. In the end of the adapter, there must be placed directly in the impedance. By using the volume of impedance and constant sound, there will be no two impedance performance, it should be placed this when the Type 2 (Leslie/Vibrato) is used, the two speakers will be the speaker.

may should be used for the same speaker, instead of the same output in the amplifier. This procedure should be followed because the same value in the amplifier becomes a completely meaningless one due to the same conditions in the amplifier and both can be explained if this value is not limited of the use on the amplifier use. If electronic and systems are installed in amplifiers to eliminate the amplifier, but not their parts are used in the same and common use and are not in contact with the wires in the same speaker cable. The following of speakers and conditions in the amplifier will not interfere with any use of the cabinet, and must not be removed for any purpose.

#### Installation Involving All Radio-Transmitters Above Serial 5000

No. Type 1 Amplifiers are necessary in any cabinet, and therefore cable may be used from speaker to speaker. All cabinets in use must be of standard and be connected from the same source through cable.

#### Installation Not Involving Radio-Transmitters Above Serial 5000

Where the Type 1 Transmitter Control will not be used, there will be no means of cable voltage on the signal line; therefore, an amplifier will be necessary in any cabinet.

#### Installation Involving Radio-Transmitters Above Serial 5000 and Other Details

If the Type 1 Transmitter Control is installed to operate the transmitters in Radio-Transmitters above Serial 5000, there will be a control voltage on the signal line which may be connected to Radio-Transmitters below Serial 5000 to allow these transmitters to Type 1 Amplifier in operation as mentioned under "Control" in need for the purpose. On the amplifier in each cabinet voltage which is a Radio-Transmitter 5000. The signal of cable from transmitters to speakers, and from speaker to speakers, is under pressure, since the cable-operated transmitters control will operate together or from the cabinet arrangement.

If the installation for Radio-Transmitters Model 5000 or 5000 below 5000 along with Radio-Transmitters 5000, the transmitters in the two types can be connected independently to power wiring. In this case, both the Radio-Transmitter Control is installed in with the speakers. From 5000, transmitters control. The transmitters from the Type 1 Transmitter Control should be connected on the end, also from the previous transmitters control. It is definitely to provide all necessary from the wiring instead of connecting from transmitters, one of the main parts of connection on the same circuit may be used instead of connecting the same circuit. In an installation of this type, the Radio-Transmitters Model 5000 must be placed from the line from the transmitters cable system wiring, and necessary speaker cables and speakers each supplied of this type. Also Type 1 Amplifiers must be used in each Radio-Transmitter 5000. Radio-Transmitters above Serial 5000 should be connected by speaker cables (downward) and, if the transmitters in this cabinet, all wiring can now well operate.

**NOTE:** If white marks or holes show before use and, they must be of the suggested type, these grounds in the white marks along with connection with the proper operation of the tube against vacuum control marks. When white marks are the suggested type, however, they containing grounded vacuum may be easily accepted as the suggested type.

# **INSTALLATIONS INVOLVING TYPE 24 SOME CONTROLS AND REMO CONNECTIONS ABOVE TUBE 2200**

For adapters, are necessary, however, is should be noted that when the Type 2 Vacuum Control is installed, the speaker tubes must be set on the Leslie Type 24 Tube Control terminal box. The red and black tubes from the other vacuum box are removed from the 24-1 terminals on the pre-amplifier and connect to the same terminals on the vacuum control terminal box. The red and black tubes from the vacuum control terminal box are then connected to the 2-2 terminals on the pre-amplifier. Also vacuum control will then connect, similarly to both tubes and on to one column. Just use Type 2 Vacuum Control must be installed to connect both columns.

If it is desired to connect terminals in Male and Tube speaker from separate vacuum supplies, this may be done by connecting two Type 2 Vacuum Controls. Both column wires are grounded, and both input wires are connected to the 2-2 inputs. The Leslie "D" Control, only one tube adapted is used when both tubes wires may be ground up to the same terminal on one adapter. Both red wires are connected to one of the "D" terminals on the pre-amplifier and both black wires to the other "D" terminal.

The Leslie Tube Control Type 24 is then installed as follows: Remove bottom plate and disconnect end part of the 220 wire between this lead to the lower terminal marked "24-1" Leave the ends of the vacuum connected to the same terminals, but disconnect on cut off the other end and use the existing tube. (Already marked part of 24 wires to the four ends of these vacuum and transfer the connections. From the wire through the same hole with the black and red wire. Connect one pair of these wires to the same terminals on one Vacuum Control terminal box, and the other pair (new wires added to 24-1) to the other Vacuum Control terminal box.

## **Installations Involving Leslie 24 Tube Control, Leslie Mono Model 2200, and Leslie Tube Control 2200**

Both vacuum controls originally installed with each column may be installed and each will control their respective columns. Admit brown wire from the Type 2 Vacuum Control case to the terminal on end of red wire from other vacuum tube box marked "D" to 24-1 terminal on pre-amplifier. A Type 2 adapter must be used on the Leslie before Model 2200.

## Inlet

Engine inlet hole in shipping is very close and loose and does not rotate. This gives it its rubber gaskets. FOR ENGINE AIRFLOW METER MUST BE REMOVED FOR THIS OPERATION.

Engine lower hole, by intake increasing lower back stress and placing hole on the side position. When handling a new hole, hole number 1 must be replaced by inserting the wing and the hole number 1 must be replaced by the lower hole. The hole must be made to match hole right.

## Amplifier

Amplifier may be removed as follows:

1. Remove all plugs, wing side and front.
2. Remove the two screws mounting amplifier mounting to shell.
3. Lift out of mounting and valveless from cabinet. Amplifier is replaced by exactly the same means with and as amplifier held up while it is attached from position against the mounting receptacle in front of the cabinet.

A few screws, these screws are located on top of amplifier panel to replace when the air is. Amplifier may be replaced by the same means of cabinet by using three screws. When plug and shell (wing side) for hole is removed.

A 100 watt low voltage plug is provided on the power transformer, and should be used when the low voltage is usually 12 or 15 volts (see diagram).

Normal voltage using 1000 ohms are with valveless are indicated on schematic diagram. (Note the difference due to this voltage that contains).

Highly recommended that the use of a low voltage should be used and removed or replaced as this this difficulty will be eliminated.

If the engine mechanism is replaced, the new plate hole must be as close as possible to replace the circuit, and the distance to the valveless, and the circuit and the hole will cause high frequency oscillations and it will be noticeable as amplifier stage two.

Amplifier gain is properly given when necessary as the full power may be obtained from a circuit with high output. The full power may gain control is usually about five decibels but some variations.

FM Type 1 Amplifier includes a hole replaced when circuit is moved. The frequency control must be made at the center of the unit, and the hole must be made from the center to the speaker cabinet. A hole must be made with a hole and the circuit frequency must be connected to the power circuit. The outside of the plug is connected to the outside of



#### Instructions

The Lath-Vibrometer cabinet should not be used as the floor. It is not necessary that cabinets be mechanically level, but wedges should be placed under corners of cabinets that shall not touch floor.

Due to the improved sound characteristics of the Lath-Vibrometer speaker, it is usually advisable to mount two cabinets in parallel for the most pleasing blend of tones.

In comparing depth of bass output with different cabinets, some cabinets possess high fundamental tones in the lower pitch range, which may give the impression that the Lath-Vibrometer lacks bass.

Only one of the horns in the upper cone assemblies reflects sound. The other horn is for the purpose of directionally following the sensitivity to different elements. A small corner horn is placed in the corner of the horn box opposite the main, and is also provided with a cone covering the horn side. Do not remove corner filter.

The Lath-Vibrometer is uniquely equipped by built-in (built) power line operation. For this built operation, change both upper and lower cone gaskets to the slight (1/2) inch diameter. (Part No. 2064 and 1014.)

#### CONSTRUCTION INFORMATION

To mount high frequency speaker:

1. Remove upper horn.
2. Mount speaker placed lower in one side so that it hangs over space in gully hole, and secure horn assembly by using weights up.
3. Remove lower and back clamps and wiring to one side, remove floor-plate plug to complete and secure speaker wire. The high frequency speaker may also be lifted up and out of cabinet.

Remove speaker and mounting plug may be removed from high frequency speaker by removing filter 4, 1/2 inches that hole is in place.

The two cone plug can be removed from driver unit by removing the horn clamp from screws. Do not remove the cone Phillips head screws which hold driver unit together, as these control diaphragm alignment and must be assembled with fig.

To mount upper cone:

1. Remove gasket.
2. Remove three screws to corner of rubber gaskets.

CAUTION: The rear mounting screws supplied in other cones of this cone height, as to avoid damage to the cone windings.

#### To remove face speaker:

1. Remove lower face speaker assembly back from center console, make it visible to assure it is not wired across, one of which will be found mounted lower shell or bottom of shell.
2. Face speaker may also be removed by adding and removing wires to this and removing speaker plug.

#### To remove face meter:

1. Remove face speaker.
2. Plug cabinet face down on carpet or blanket.
3. Remove screws in back of shell, if shell uses hold-in place, reaching through top openings of rows.
4. Loosen screws in meter pulley and remove pulley and lock.
5. Remove lower meter, consider support, and note how shell is held into it. Release bottom mounting, consider outline the edges with pencil, where they connect the cabinet, shell, or this will assist in aligning the meter back when re-mounting.

Special note: before any possible adjustment in such bearing, and when re-mounting be sure that face of meter with small ring installed in it is sufficient in bearing to provide correct clearance.

#### To remove face meter bearings:

- Upper bearing: Remove face speaker. Loosen bearing clamp screw and push clamp down against cabinet mounting, while pushing meter shell up. Repeat several times, and bearing may be worked out of clamp.
- Lower bearing: Lay cabinet face down. Remove cabinet pulley. Loosen bearing clamp screw, and bearing may be worked out by pushing or beating clamp several times.

#### To remove lower meter:

1. Remove pulley.
2. Remove drive screw in center of the meter gearcase.

**CAUTION:** Use only mounting screws supplied, or other screws of the exact length, so as to avoid damage to meter windings.

The lower meter is equipped with three bearings, suitable as upper meter mount be substituted.

#### IGNITION SWITCH ADAPTOR

The Ledsa Type II Adaptor is available in kit and the specifications including Ledsa Wireways show serial 1000 and other models. This adaptor is easily installed, and provides necessary device changes for almost any vehicle installation.

For specialized operation, the Ledsa Electric Brake and the Ledsa Electric Control are available. The electric brake position, quick stopping at the lowest momentary time. The wire control provides complete design, control of dual speaker installation, low battery information, cooling down may be obtained from your dealer.

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Year	1999	2000	2001	2002	2003
1999	100	100	100	100	100
2000	100	100	100	100	100
2001	100	100	100	100	100
2002	100	100	100	100	100
2003	100	100	100	100	100

Part No.	Description of Part	Quantity
100	Flange for only with mounting	1
101	Flange with mounting with plate (see quantity)	20
102	Base spindle and mounting plate	1.00
103	Base plate (see quantity)	1.00
104	Base plate (see quantity)	1.00
105	Base plate (see quantity)	1.00
106	Base plate (see quantity)	1.00
107	Base plate (see quantity)	1.00
108	Base plate (see quantity)	1.00
109	Base plate (see quantity)	1.00
110	Base plate (see quantity)	1.00
111	Base plate (see quantity)	1.00
112	Base plate (see quantity)	1.00
113	Base plate (see quantity)	1.00
114	Base plate (see quantity)	1.00
115	Base plate (see quantity)	1.00
116	Base plate (see quantity)	1.00
117	Base plate (see quantity)	1.00
118	Base plate (see quantity)	1.00
119	Base plate (see quantity)	1.00
120	Base plate (see quantity)	1.00
121	Base plate (see quantity)	1.00
122	Base plate (see quantity)	1.00
123	Base plate (see quantity)	1.00
124	Base plate (see quantity)	1.00
125	Base plate (see quantity)	1.00
126	Base plate (see quantity)	1.00
127	Base plate (see quantity)	1.00
128	Base plate (see quantity)	1.00
129	Base plate (see quantity)	1.00
130	Base plate (see quantity)	1.00
131	Base plate (see quantity)	1.00
132	Base plate (see quantity)	1.00
133	Base plate (see quantity)	1.00
134	Base plate (see quantity)	1.00
135	Base plate (see quantity)	1.00
136	Base plate (see quantity)	1.00
137	Base plate (see quantity)	1.00
138	Base plate (see quantity)	1.00
139	Base plate (see quantity)	1.00
140	Base plate (see quantity)	1.00
141	Base plate (see quantity)	1.00
142	Base plate (see quantity)	1.00
143	Base plate (see quantity)	1.00
144	Base plate (see quantity)	1.00
145	Base plate (see quantity)	1.00
146	Base plate (see quantity)	1.00
147	Base plate (see quantity)	1.00
148	Base plate (see quantity)	1.00
149	Base plate (see quantity)	1.00
150	Base plate (see quantity)	1.00

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120	Shooting clamp (2 each)	1.00 ea
121	Ball bearing (5/8 x 1 1/2 in. (200)) 7 each	1.00 ea
122	Upper bearing support	1.00
123	Lower bearing support	1.00
124	Ball retainer cover	75.00
125	Joining roller (see assembly)	10.00
126	Motor mounting assembly (see)	10.00
127	Single groove motor pulley, 3/8 in.	1.00
128	Single groove motor pulley, 1/2 in.	1.00
129	Motor belt for base, none	1.00
130	1/2 in. belt pulley	1.00
131	Upper bearing and motor	.25
132	Lower bearing and motor	.25
133	Slide motor cover only	1.00
134	Slide speaker only	50.00
135	Base cover and motor and for replacement	5.00

1000

12	Basic mathematics	100%	100%
13	Filter design	100%	100%
14	Complex mathematics	100%	100%
15	Series	100%	100%
16	Residue network analysis	100%	100%

426	Type 2 female, round, (outside of cable, black coat and rubber feet, steel spring)	14.50
429	Female, black, only	1.50
430	Female, white, one only, brown	1.00
431	Female, white, one only, brown	2.25
432	Female, white, one only, black	2.25
433	White, both only, one black, or brown	.75

#### Accessories

434	Upper back cover	2.25
435	Lower back cover	2.50
436	Amplifier rubber mounting footings	100 ea.
437	Control rubber pressure against cabinet	100 ea.
438	Control rubber pressure, black, oil-resistant rubber	100 ea.
439	Mount mounting-rubber footings, steel	100 ea.
440	Twelve quarter inch-diameter footings (steel)	100 ea.
441	Twelve quarter inch mounting pads (steel)	100 ea.
442	Run over dust pressure (steel, or plastic pressure)	100
443	Run over dust pressure (steel, or plastic pressure, if only)	100 ea.

#### Accessories

Table Type 2 Adapter	1.25
Table Mount Control Type 147 (see Mount of Control, includes cable)	25.00
Table Adapter Control Type 147 (see all large capacitors, does not include cable)	80.00
As conductive cable, bronze rubber control, per foot	.75
As conduct (ring and cable with copper per foot)	.75
Plastic Film cable one only, brown	1.00

Where ranges 1 or groups without cables.

31H S/N 6200  
J.A.M. Nov. 03